ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

MEMORANDUM

TO: Land Division File

DATE: 3-27-84

FROM: Rick Hersemann

☒ Information only

SUBJECT: LPC # 0418080I - Douglas County - Tuscola / Cabot Corp.

☐ Response requested

Meeting was held at Division Headquarters between representatives of I.E.P.A. and Cabot Corporation. Purpose of meeting was to discuss the closure of Cabot's hazardous waste surface impoundments. Cabot would like to install waste acid storage tanks to replace the impoundments. Cabot submitted a preliminary plan for closure of the surface impoundments and installation of the storage tanks. Cabot representatives wanted IEPA input on their proposal.

Cabot was informed that the surface impoundments would have to be closed under the 725 and 264 closure requirements for surface impoundments. Suggestions concerning Cabot's preliminary plan were also made by IEPA representatives. Cabot will submit the final closure plan for the surface impoundments to DLPC Permits section.

The above is written to document the meeting of March 27, 1984.

Douglas Co LPC# 0418080I
Tuscola / Cabot Corp

IEPA / CABOT CORP.
MARCH 27, 1984

Rick Heseman	IEPA	DLPC/FOS
John Student	IEPA	DLPC/CMS
[illegible] Brews	CABOT	Maintenance Mgr.
Dave Wolfe	Cabot	Corporate Pollution Dept
Randy Bergson	Cabot	Project Engineer
Kong-Ling Yang	Cabot	Plant Mgr
Gabriel Paci	Cabot	Product Mgr
Jim Moore	IEPA	DLPC/Permits
Pat Murphy	IEPA	DLPC/Permits
John Perry	IEPA	DLPC/GWM

Douglas Co. LPC# 0412080 01
Tuscola / Cabot Corp.

March 26, 1984

ACID WASTE SYSTEM PROJECT DESCRIPTION

I. OBJECTIVE

The objective of this project is to eliminate the use of surface impoundments for storing acid wastes.

II. DESCRIPTION OF EXISTING ACID WASTE SYSTEM

Acid wastes originate from the following sources:

1) HCl gas scrubber sump drainage.
2) HCl gas fan drainage.
3) Tank farm vent scrubbers.
4) Acid area run-off.
5) 32% HCl sewered due to lack of sales.
6) #2 well sump.
7) Railroad track drains.
8) Leach field drainage system.

The HCl gas scrubber sump drainage, HCl gas fan drainage, acid area runoff, and sewer acid, gravity feed from the two acid areas into the West Galigher sump. From there these wastes are pumped into the surface impoundment.

The tank farm vent scrubber drains and the railroad track drains flow into the North Galigher sump. From there they are pumped to the Mix Tank, which gravity feeds into the surface impoundment (SI).

The discharge from the surface impoundment feeds the well injection pumps.

The well injection pump continuously recycles acid waste back to the mix tank until the surface impoundment level reaches a predetermined height. At that level, the well flow control valve opens allowing flow down the well. When the SI's level falls below a certain height the valve is shut off. Number 2 disposal well is the primary well and Number 1 well serves as back-up.

III. DESCRIPTION OF PROPOSED ACID WASTE SYSTEM

The attached Criteria for Tanks was used as the basis for the following system description

A) Storage Tanks

A 250,000 gallon open top tank and a 30,000 gallon open top tank will replace the SI's for acid waste storage. The tanks are to be constructed of FRP and are to set above ground on top of acid proofed concrete foundations.

The 30,000 gallon tank will serve as a back-up tank when the 250,000 gallon tank is out of service for maintenance and cleaning.

B) Secondary Containment

A 2' concrete wall is to be constructed around the two tanks and an access way into the south SI will be dug out. The ground around the tanks will be sloped toward the SI. Capacity of the south SI for emergency acid waste containment would be ~425,000 gallons.

In the unlikely event of a spill or tank rupture the acid waste will flow into the south SI (acid waste spill containment area). This will prevent run off of acid waste into our plant drainage system. Also a drain line from the west Galigher sump to the acid waste containment area will be installed to prevent overflow of the Galigher sump into the plant drainage system.

A sump and pump will be located at the northeast corner of the containment area. The containment area will be sloped to the sump to prevent rainwater accumulation. The sump will have an open bottom to allow contaminated ground water to enter the sump. The sump pump will pump accumulated rainwater and the contaminated groundwater to the acid waste storage tank. Therefore, the sump pump will keep the containment area dry and will also draw contaminated groundwater out of the ground for injection down our disposal well preventing further contamination migration.

In conclusion, our proposal to use the south surface impoundment for secondary containment has four advantages:

1) It prevents acid waste run-off to our plant drainage system from the West Galigher sump and acid waste storage tanks.

2) It will draw in contaminated ground water from under our SI's for injection down our disposal wells.

3) It will keep the SI area dry and drained to prevent further migration of contamination.

4) It will lower the final project cost significantly.

C) INSTRUMENTATION

The tank level will be recorded continuously in the ABC control room and high and low level alarms will alert the operators if problems occur.

A high level switch is to be installed in the West Galigher sump which will sound an alarm if a high level in the sump is reached.

IV. PRELIMINARY ACID WASTE SYSTEM PM PROGRAM

1) Tank cleaning and inspection.

a) Wash out solids build-up in the tank and inspect inside walls for cracks. Inspect all valves and replace gaskets. Tank cleaning and inspection will be done annually.

b) Perform an acoustic emission test on the tank to test tank integrity if visual inspection suggests the need.

c) Hydrotest the tank every five years.

2) Tank foundation inspection.

Examine foundations for cracks and corrosion. Dig below surface and inspect for corrosion.

3) Instrumentation inspection and calibration.

Inspect level control instruments and equipment and re-calibrate level recorder. Inspection will be conducted every six months.

4) Well inspection.

Pressure test to 500 psig all tubing , and log the casing to check for corrosion. Number 2 well is inspected annually. Number 1 well is inspected every two years.

5) Pumps

PM schedule already in place.

6) Monitoring wells,

Per IEPA instruction.

V. PRELIMINARY ACID WASTE TANK CONTINGENCY PLAN (CONTINGENCY/ACTION)

1) Number 2 well is down/Switch to Number 1 well.

2) Injection pump is down/Switch to in-line spare injection pump.

3) Flow rate into well cannot keep up with tank inlet flow/Shut off tank farm sump pumps until tank level is under control.

4) One Galigher pump is down/On-line spare will come on automatically.

5) Power failure/Monitor tank level and open well flow control by-pass valve if necessary to gravity feed the well. Also open Galigher sump overflow valve to prevent acid waste from entering plant drainage system.

6) Number 2 well and Number 1 well are both inoperable/Shut down plant. Contain all acid wastes until wells are back in operation.

VII. PRELIMINARY DAILY OPERATING INSTRUCTIONS

Operations are to check and record on log sheets the following, once per 8 hour shift. The plant operates 7 days per week, 24 hours per day. The ABC acid area operator will be responsible for recording data.

1) Disposal well conditions.

a) Annulus pressure.

b) Injection pressure.

c) Flow rate.

2) Storage tank operation.

a) Tank level (sight glass and recorder).

b) Discharge pump pressure.

c) West Galigher sump level.

3) Sampling

One sample per day will be taken by the lab to analyze for percent HCl and termperature. Also a weekly composite sample will be made from the daily samples and analyzed for the following:

1) pH
2) % HCl
3) Total chloride
4) Suspended solids
5) Density
6) Total dissolved solids
7) Viscosity

Abnormal conditions are to be reported to the operator's supervisor and recorded in a special log book.

2512A

Preliminary Scope For Acid Waste Storage Tank

A) General

This project is to provide the capability for storage of 250,000 gal. of waste acid so that we can stop using the two acid waste ponds. The project is to include tanks, piping, instrumentation, pumps, dikes, site preparation and utilities.

Attached to the scope are the regulations established by the IEPA for waste storage tanks. These regulations were prepared by the IEPA to assist their personnel in evaulation of permit applications. Information contained therein must be considered during design.

B) Tanks

The waste acid storage tank is to be a 250,000 gal. open top FRP tank. The tank will normally handle wastes with an acid concentration of 4 to 8% (100°F maximum), however it should be capable of handling 32% HCl in an emergency. Maximum diameter of the tank is to be 35'.

The tank is to be installed on a elevated ring wall type foundation. The tank will sit on a sulfur concrete or fiberglass protected concrete pad that will allow for detection of any bottom leaks. The foundation ring wall is to be coated with a bitumastic type coating for protection against the acid contaminated soil. Also, the bottom of the foundation should have an asphalt seal to protect against acid infiltration.

The tank should be equipped with an outside ladder designed to meet OSHA requirements with platforms midway and at the top of the tank and a FRP inside ladder. The tank should have a 24" manway, a 6" bottom drain, and two 4" discharge nozzles with 3' elevation difference to allow for solids settling. The tank should have a 2" sight glass with sample drain valve and pipe support brackets. The tank should also have UV light protection and should be constructed to comply with the National Bureau of Standards PS15-69 or the ASTM D3299.

A second smaller FRP open top tank is to be installed next to the large tank. The smaller tank will serve as a back up tank for use during maintenance and cleaning of the large tank.The tank should have 30,000 gal. capacity with a 24" manway, a 6" bottom drain, two 4" discharge nozzles, pipe support brackets, 2" sight glass and OSHA approved access ladder.

The foundation for the smaller tank should be constructed out of sulfur concrete or fiberglass coated concrete. The tanks are to be located east of the south waste pond. See the attached drawing for the proposed location of the tanks.

C) Piping

All piping is to be schedule 80 PVC. Proposed pipe routings and sizes are shown on the attached drawings.

All pipe supports should be constructed of steel, painted according to our plant paint specs. Spacing of the pipe supports should be no greater than 8'. Allowances for pipe expansion should also be made.

All above ground piping should be heat traced with Chemelox self limiting 4 ATV heat tape and insulated with Thermagrip 375 1 1/2" insulation.

Piping should be flanged every 60' and at major direction changes. Teflon coated bolts and neoprene gaskets are to be used.

All valves 3" and larger are to be Nil-Cor 310 flanged ball valves. Smaller valves should be PVC ball valves.

The sight glass should be fabricated from clear schd. 40 PVC pipe.

D) Instrumentation

A bubbler type level control system will be used for controlling and indicating tank level. Valves on the bubbler piping will be provided for switching to the tank in use. The components from the existing pond level control system should be utilized. The existing pond level recorder (ABC Control Room) can be used to record tank level.

A high and low tank level alarm is to be provided in the ABC control room and connected to the Panalarm System. Alarm levels will be determined later. The #1 and #2 wells' automatic control valves will be tied into the level control system as with the existing system. The automatic valves should open at 10' of tank level and close at 5'.

A high level alarm for the West Galigher pit should also be installed and connected to the ABC Control Room Panalarm system.

E) Pumps

The existing pond pumps will be used for pumping from the tanks to the wells. The pump strainer will need to be relocated to accommodate piping tie ins. Teflon expansion joints at the pump suction will be needed.

E) Pumps (cont'd)

The west 2 1/2" Galigher sump pumps (7 1/2 h.p. motor) will be replaced by the larger 3 1/2" Galigher leach field pumps (25 h.p. motor). The larger pumps are needed to handle the increased flow into the west Galigher sump. New conduit and wiring to these pumps will be needed for the larger motors. The existing motor starters are to be used and located next to the pumps. The pumps' float controls should be set up so that both pumps can operate simultaneously during periods of high inflow. One pump can handle normal inflow. Separate start/stop buttons for each pump should also be provided. Pump supports at the sump will have to be revamped for the new pumps.

The 2 1/2" pumps should be moved to the leach field.

A 48" long, 1 1/2" Galigher rubber lined pump and FRP sump should be installed at the northeast corner of the south pond. An access platform to the pump should be supplied.

F) Dikes and Site Preparation

A 2' concrete dike (55' x 175' x 55') should be constructed around the acid waste storage tanks and pumps and be tied into the existing pond dike. The area surrounded by the dike should be large enough to allow for construction of a future 250,000 gal. tank. A hole in the south pond wall is to be dug out to allow for drainage of any spills into the pond area. The area around the storage tanks should be graded so that any leaks or spills flow into the pond area.

The pond itself should be sloped toward the sump to prevent accumulation of surface water in the pond. Further steps to neutralize and cap the pond will be done as part of another project.

G) Utilities

Electrical power for the west Galigher pumps comes from the D Unit motor control center. New conduit and wire from D Unit to the west Galigher pump will need to be run to accommodate the larger pump motors.

Electrical power for the pond sump pump and heat trace is available at the pond pump control board. Also a spare size 2 starter is available for the sump pump.

Air and power for the existing pond level control system can be used for the tank level control system.

The underground 4" and 2" PVC lines to the #2 well will have to be relocated during construction of the tank foundations. Also at least one conduit will also have to be moved. Lighting, water, 110V electrical outlets, and a safety shower are existing at the site.

All new conduits are to be plasti-bond PVC coated.